humiFog Multizone

ricambi/spare parts

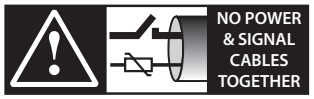
CAREL

ITA Manuale d'uso

ENG User manual

LEGGI E CONSERVA QUESTE ISTRUZIONI

READ AND SAVE THESE INSTRUCTIONS



READ CAREFULLY IN THE TEXT!

Integrated Control Solutions & Energy Savings

WARNINGS

CAREL INDUSTRIES Hq humidifiers are advanced products, whose operation is specified in the technical documentation supplied with the product or can be downloaded, even prior to purchase, from the website www.carel.com. Each CAREL INDUSTRIES Hq product, in relation to its advanced level of technology, requires setup/configuration/programming/commissioning to be able to operate in the best possible way for the specific application. The failure to complete such operations, which are required/indicated in the user manual, may cause the final product to malfunction; CAREL INDUSTRIES Hq accepts no liability in such cases.

The customer (manufacturer, developer or installer of the final equipment) accepts all liability and risk relating to the configuration of the product in order to reach the expected results in relation to the specific final installation and/or equipment. CAREL INDUSTRIES Hq may, based on specific agreements, act as a consultant for the installation/commissioning/use of the unit, however in no case does it accept liability for the correct operation of the humidifier and the final installation if the warnings or suggestions provided in this manual or in other product technical documents are not heeded. In addition to observing the above warnings and suggestions, the following warnings must be heeded for the correct use of the product:

- **DANGER OF ELECTRIC SHOCK**
- The humidifier contains live electrical components. Disconnect the mains power supply before accessing inside parts or during maintenance and installation;
- **DANGER OF WATER LEAKS**
- The humidifier automatically and constantly fills/drains certain quantities of water. Malfunctions in the connections or in the humidifier may cause leaks;
- **For isothermal humidifiers: DANGER OF BURNS**
- The humidifier contains high temperature components (100°C/212°F);
- **For gas-fired isothermal humidifiers: DANGER OF GAS LEAKS**
- The humidifier is connected to the gas mains. Malfunctions in the connections or inside the humidifier may cause gas leaks.
- The installation of the product must include an earth connection, using the special yellow-green terminal available in the humidifier.
- The environmental and power supply conditions must conform to the values specified on the product rating labels.
- The product is designed exclusively to humidify rooms either directly or through distribution systems (ducts). In addition, for adiabatic-water spray-pressure humidifiers, humidification also occurs through the atomisation rack.
- Only qualified personnel who are aware of the necessary precautions and able to perform the required operations correctly may install, operate or carry out technical service on the product.
- Only water with the characteristics indicated in this manual must be used for steam or water vapour production.
- Warning, demineralised drinking water must be used for adiabatic-water spray-pressure humidifiers (as specified in the manual). In addition, the particles of water not absorbed by the air must be removed into the droplet collection tank (in the humidification section) and by the droplet separator (at the end of the humidification section).
- All operations on the product must be carried out according to the instructions provided in this manual and on the labels applied to the product. Any uses or modifications that are not authorised by the manufacturer are considered improper. CAREL INDUSTRIES Hq declines all liability for any such unauthorised use.
- Do not attempt to open the humidifier in ways other than those specified in the manual.
- Observe the standards in force in the place where the humidifier is installed.
- Keep the humidifier out of the reach of children and animals.
- Do not install and use the product near objects that may be damaged when in contact with water (or condensate). CAREL INDUSTRIES Hq declines all liability for direct or indirect damage following water leaks from the humidifier.
- Do not use corrosive chemicals, solvents or aggressive detergents to clean the inside and outside parts of the humidifier, unless specifically indicated in the user manual.
- Do not drop, hit or shake the humidifier, as the inside parts and the linings may be irreparably damaged.
- For adiabatic-water spray-pressure humidifiers: the atomised water must be distributed using a special atomising 'rack' or through distribution systems specified by CAREL INDUSTRIES Hq
- For isothermal appliances: these are designed to produce steam at atmospheric pressure, and not pressurised steam. CAREL INDUSTRIES Hq does not recommend and waives all liability for the use of distribution devices other than those specified.

CAREL INDUSTRIES Hq adopts a policy of continual development. Consequently, CAREL reserves the right to make changes and improvements to any product described in this document without prior warning. The technical specifications shown in the manual may be changed without prior warning.

The liability of CAREL INDUSTRIES Hq in relation to its products is specified in the CAREL INDUSTRIES Hq general contract conditions, available on the website www.carel.com and/or by specific agreements with customers; specifically, to the extent where allowed by applicable legislation, in no case will CAREL INDUSTRIES Hq, its employees or subsidiaries be liable for any lost earnings or sales, losses of data and information, costs of replacement goods or services, damage to things or people, downtime or any direct, indirect, incidental, actual, punitive, exemplary, special or consequential damage of any kind whatsoever, whether contractual, extra-contractual or due to negligence, or any other liabilities deriving from the installation, use or impossibility to use the product, even if CAREL INDUSTRIES Hq or its subsidiaries are warned of the possibility of such damage.

DISPOSAL

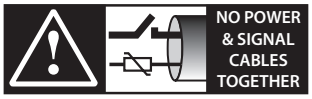
The humidifier is made up of metal parts and plastic parts. In reference to European Union directive 2002/96/EC issued on 27 January 2003 and the related national legislation, please note that:

1. WEEE cannot be disposed of as municipal waste and such waste must be collected and disposed of separately;
2. the public or private waste collection systems defined by local legislation must be used. In addition, the equipment can be returned to the distributor at the end of its working life when buying new equipment;
3. the equipment may contain hazardous substances: the improper use or incorrect disposal of such may have negative effects on human health and on the environment;
4. the symbol (crossed-out wheeled bin) shown on the product or on the packaging and on the instruction sheet indicates that the equipment has been introduced onto the market after 13 August 2005 and that it must be disposed of separately;
5. in the event of illegal disposal of electrical and electronic waste, the penalties are specified by local waste disposal legislation.

Warranty on the materials: 2 years (from the date of production, excluding consumables).

Approval: the quality and safety of CAREL INDUSTRIES Hq products are guaranteed by the ISO 9001 certified design and production system, as well as by the following marks.

WARNING: separate as much as possible the probe and digital input signal cables from the cables carrying inductive loads and power cables to avoid possible electromagnetic disturbance.
Never run power cables (including the electrical panel wiring) and signal cables in the same conduits.



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1. PREVENTIVE MAINTENANCE

Pump

Check	monthly	every 2000 h	every 4000 h
water filters			X
check oil level	X		
change oil			X
replace gaskets and valves			X

Important: change the oil in the pump after the first 50 hours of operation

Rack and room distribution system

visual inspection	monthly	every 2000 h	every 4000 h
blocked nozzles		X	
solenoid valves		X	
accessories			X
drains and water		X	
droplet separator	X		

Installations in AHUs or ducts must also comply with national maintenance standards (ASHRAE 12-2000, VDI 6022, UNI 8884, VDI 3803, etc.).

Please note that:

- the personnel in charge of maintenance must reset the hour counter after having performed the preventive maintenance operations listed in the columns "after 50 hours", "every 2000 hours" and "every 4000 hours". If the hour counter is not reset, the maintenance warnings will no longer be signalled;
- the personnel in charge of maintenance are responsible for any malfunctions due to a lack of preventive maintenance. The controller will show the maintenance warning code "C5" after the first 50 hours and, subsequently, the routine maintenance warning code "CL" every 2000 hours as a reminder for the following operations;
- failure to change the oil after the first 50 hours of operation may cause serious damage to the pumps and reduce operating life;
- the maintenance signals do not stop the operation of humiFog.

1.1 Preventive maintenance of the water filter

The filters should be checked monthly, while the 9" filter (Fig. 1.c) should only be replaced if the pressure difference between the two pressure gauges in Fig. 1.a is > 0.5 bars.

1. access the water circuit;
2. open the external water supply tap;
3. check the pressure drop across the water filter.

ΔP= PIN - PUSC ≤ 0.5 bar?	YES= proceed with the remaining maintenance operations
	NO= replace the cartridges

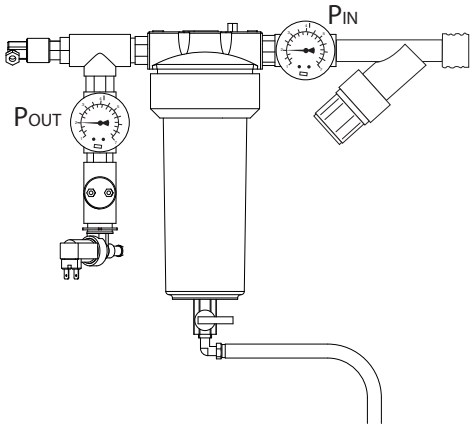


Fig. 1.a

Procedure:

1. switch off humiFog;
2. shut off the water supply externally;
3. access the water circuit;
4. drain the filter: open the bottom valve on the filter, press the plug at the top to completely drain the filter (Fig. 1.b).
5. open the filter: release the nut using the filter tool supplied (Fig. 1.d);
6. replace the cartridge;
7. close the filter (Fig. 1.d);
8. go to the "Y" filter on the regulator (Fig. 1.e);
9. unscrew the filter case;
10. remove and wash the filter;
11. replace the filter;
12. fill the filter with water:
    - close the bottom valve on the filter;
    - open the water supply tap (external);
    - press the black plug on the filter to the right until water is released around the plug (Fig. 1.c);
    - dry the water that leaked out.
13. close the water circuit section;
14. switch on humiFog;
15. the cartridges are made from polypropylene: dispose of in accordance with local standards/laws.

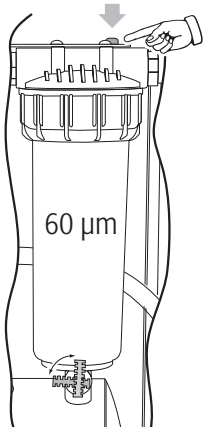


Fig. 1.c

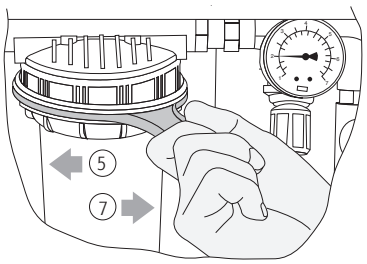


Fig. 1.d

Washable FILTER KIT

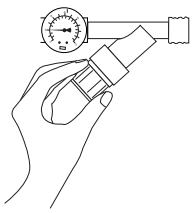


Fig. 1.e

2. PREVENTIVE MAINTENANCE OF THE PUMP

2.1 Checking the oil level

The oil level should be checked visually every month. The figure shows the correct oil level in the gauge.

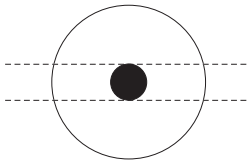


Fig. 2.a

The drawing shows the front of the transparent Plexiglas oil level gauge.

If the level is lower than the mark shown in the figure, top up with oil to the correct level; in the event of oil leaks, contact CAREL.

2.2 Changing the oil, gaskets and valves

The oil must be changed every 4000 operating hours, also replacing the pump gaskets and valves.

Changing the oil

1. switch off humiFog;
2. shut off the water supply externally;
3. access the water circuit;
4. remove the yellow cap from the top of the pump and open the oil drain plug on the rear of the pump;
5. drain the oil and close the plug;
6. dispose of the oil according to local standards;
7. fill with (ISO 68) SAE 20 W - 30 W oil to the level indicated (around 350 ml of oil);
8. close the top oil cap;
9. close the water circuit section;
10. switch on humiFog.

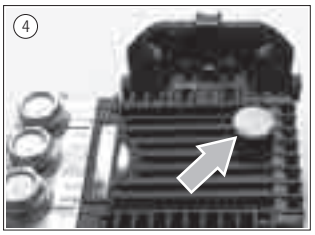


Fig. 2.b

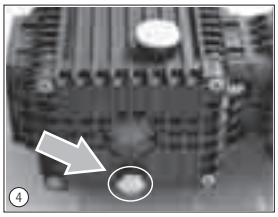


Fig. 2.c

Replacing the gaskets

1. switch off humiFog;
2. shut off the water supply externally;
3. access the water circuit;
4. disconnect the wiring from the pressure probe, the HP switch, the safety solenoid valve and the NTC probe (Fig. 4.b);
5. disconnect the hose from the pump outlet;
6. unscrew the 8 hexagonal screws that couple the head of the pump to the sump;
7. replace the existing gaskets;
8. retighten the 8 hexagonal screws that couple the head of the pump to the sump;
9. connect the hose to the pump outlet;
10. connect the wiring to the pressure probe, the HP switch, the safety solenoid valve and the NTC probe;
11. close the water circuit section;
12. switch on humiFog.

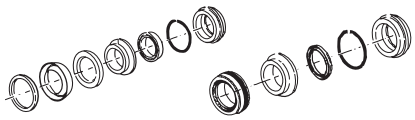


Fig. 2.d

Replacing the valves

1. switch off humiFog;
2. shut off the water supply externally;
3. access the water circuit;
4. unscrew the three caps on the top and front of the pump head;
5. replace the 6 existing valves;
6. tighten the three caps on the top and front of the pump head;
7. close the water circuit section;
8. switch on humiFog.

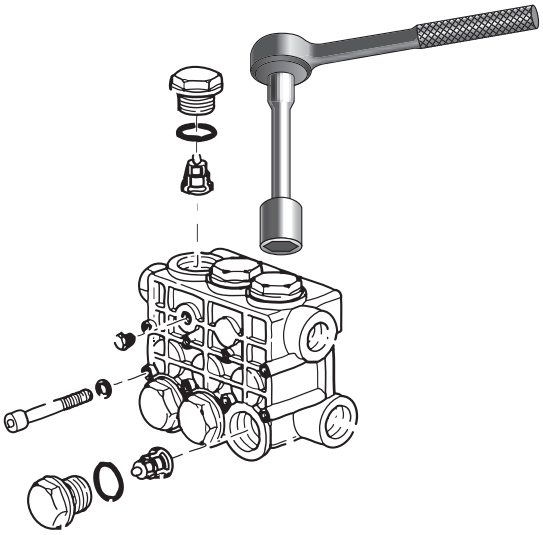


Fig. 2.e

Spare part codes:

UAKVGO1500	Gasket and valve kit for UA 100-200-320 with brass pump
UAKVGO1800	Gasket and valve kit for UA 460-600 with brass pump.
UAKVGX1500	Gasket and valve kit for UA 100-200-320 with stainless steel pump.
UAKVGX1800	Gasket and valve kit for UA 460-600 with stainless steel pump

The hour counter can be reset under the "maintenance -> hour counter", and requires the maintenance password.

4. REPLACING THE COMPONENTS IN THE CABINET

4.1 Motor, pump and related components

This chapter provides explanations on how to replace the motor, the pump and all the external components connected directly to these.

Fig. 4.a

1. repeat points from 1 to 6, in paragraph 2.2 sub-paragraph "Replacing the gaskets";
2. remove the power cable from the motor, paying attention to the terminals that the cables are connected to!
3. remove the temperature probe (Fig. 4.b ref. F);
4. remove the connectors from the pressure probe, (Fig. 4.b ref. B), the maximum pressure switch (Fig. 4.b ref. C) and the safety valve (Fig. 4.b ref. D);
5. unscrew the pump support from the cabinet;
6. remove the motor and pump from the cabinet;

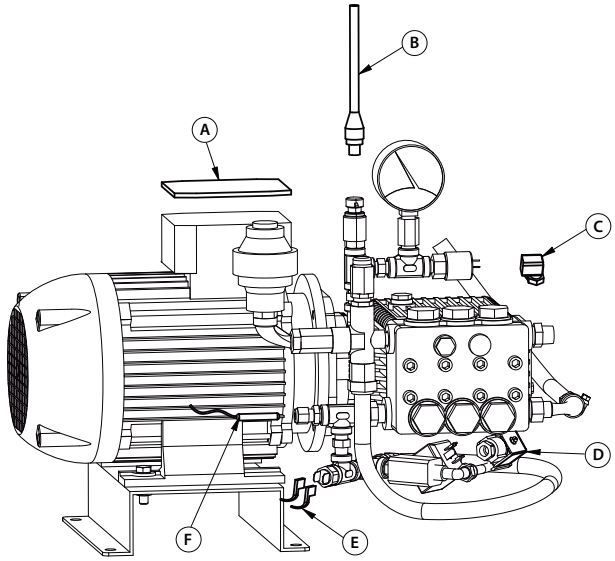


Fig. 4.b

Key:

A motor connection cover
B pressure transducer connector
C HP pressure switch connector
D bypass solenoid valve connector
E temperature valve spade connector
F NTC temperature probe

7. unscrew the screws between the pump and the motor. If the pump is hard to remove, use the coupling screws as extractors (Fig. 4.c);
8. unscrew the motor from the plate.

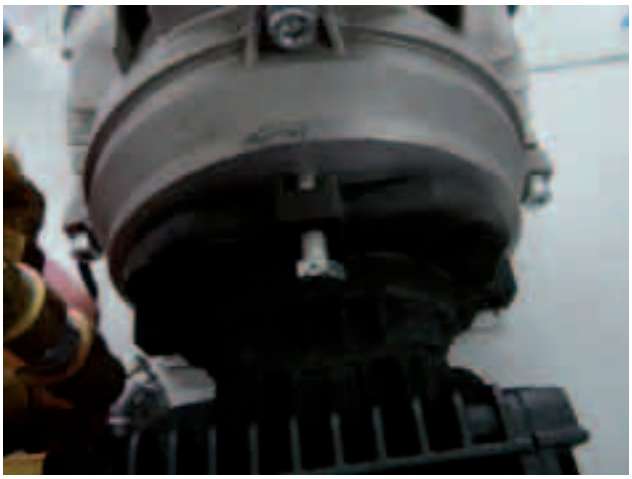


Fig. 4.b

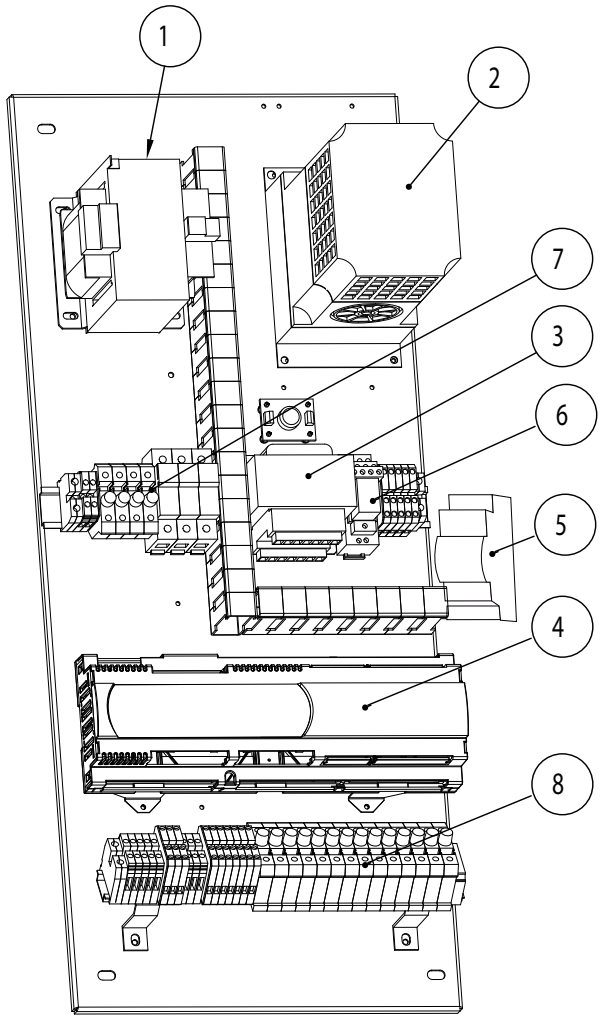
Important: do not lose the pin between the motor and the pump

The motor can now be replaced (continue for the pump)

9. remove all the necessary components, in the sequence shown;
10. remove the recirculation valve in the sequence shown; the pump can now be replaced;
11. reassemble all the components in the reverse order;
12. use liquid Teflon for the high pressure connections. Wait at least 6 hours for the liquid Teflon to dry before opening the water supply to the assembled parts;
13. open external water supply;
14. fill the water filters (Fig. 1.c);
15. close the water circuit section;
16. switch on humiFog.

UAKP100Y00	Brass pump kit for UA100
UAKP100Y01	Stainless steel pump kit for UA100
UAKP100Y10	Brass pump kit for UA100 + sm
UAKP100Y11	Stainless steel pump kit for UA100 +sm
UAKP200Y00	Brass pump kit for UA200
UAKP200Y01	Stainless steel pump kit for UA200
UAKP200Y10	Brass pump kit for UA200 + sm
UAKP200Y11	Stainless steel pump kit for UA200 +sm
UAKP320Y10	Brass pump kit for UA320 + sm
UAKP320Y11	Stainless steel pump kit for UA320 +sm
UAKP460Y10	Brass pump kit for UA460 + sm
UAKP460Y11	Stainless steel pump kit for UA460 +sm
UAKP600Y10	Brass pump kit for ua600 + sm
UAKP600Y11	Stainless steel pump kit for UA600 +sm
UAKM075F50	1HP electric motor kit for UA100HD-UA200HD-UA100ZD-UA200ZD
UAKM150F50	2HP electric motor kit for UA320HD-UA460HD-UA320ZD-UA460ZD
UAKM220F50	3HP electric motor kit for UA600HD UA600ZD
UAKM075F60	1HP electric motor kit for UA100HU-UA200HU-UA100ZU-UA200ZU
UAKM150F60	2HP electric motor kit for UA360HU-UA420HU-UA360ZU-UA420ZU
UAKM220F60	3HP electric motor kit for UA600HU-UA600ZU

4.2 Replacing the electrical components in the cabinet



Position	part code	description
1	UAKTRB0000	400 VA transformer
2	UAKVFD0750	UA100/200***** - inverter 0.75 KW 230 V
	UAKVFD1500	UA320/460***** - inverter 1.5 KW 230 V
	UAKVFD2200	UA600***** - inverter 2.2 KW 230 V
3	URKTR20000	100 VA transformer
4	UAKPCO3H00	pCO3 large for UAXXXHX3XX
	UAKPCO3Z00	pCO3 large for UAXXXZX3XX
	UAKPCO3S00	pCO3 large for UAXXXSX3XX
5	PCOUMID2000	pCO umid
6	UAKREL24040	24 V relay kit, 4 changeover contacts
7	UAKFUSETR0	transformer fuse kit
8	UAKFUSEVA0	valve fuse kit

Tab. 4.a

Replacing the inverter

1. disconnect the cables;
2. carefully unscrew the inverter;
3. replace with a new inverter;
4. reconnect the cables;
5. check the correct earthing of the shields on the control cable (li1, +2) and power cable (U, V, W, PE);
6. reposition the cover on the terminal;
7. close the electrical section;
8. switch on humiFog.

5. RACK SPARE PARTS

5.1 List of duct distribution system spare parts

Important:

- use liquid Teflon guaranteed for water pressures up to 100 bars to seal the water connections;
- wait 3 hours for the Teflon to set.

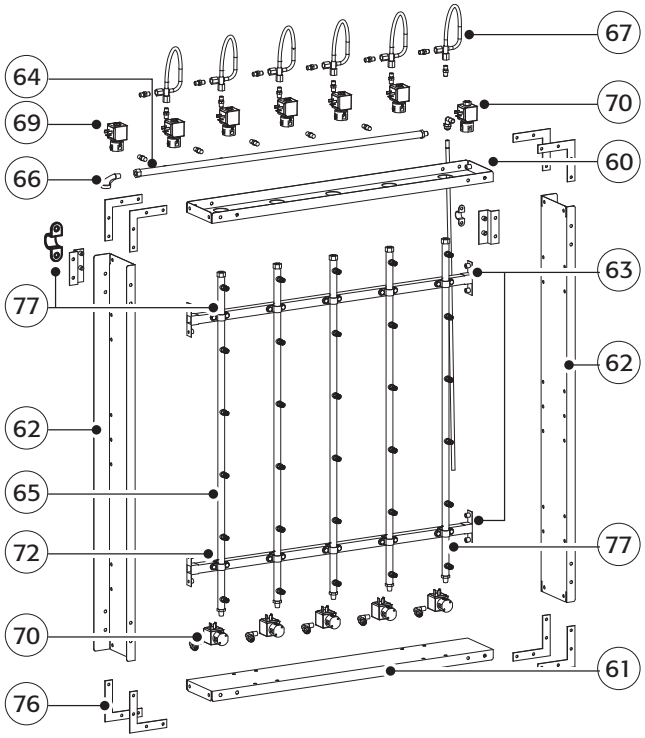


Fig. 5.a

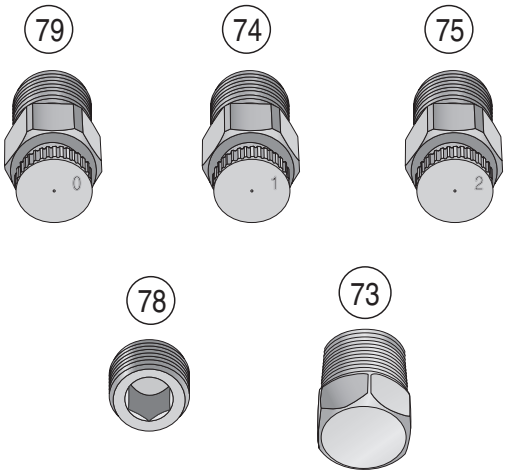


Fig. 5.b

ref.	description	code	notes
60	frame top side	14C585A1**	** = 00 to 15 based on the length
61	frame bottom side	14C470A1**	** = 00 to 15 based on the length
62	side shoulder	14C585A1**	** = 20 to 35 based on the length
63	vertical manifold support bar	14C470A1**	** = 40 to 55 based on the length
64	horizontal manifold	98C585P2**	** = 80 to 95 based on the length
65	vertical manifold	98C585P2**	** = 60 to 75 based on the length
66	M/F G1/4" elbow connector	1309610AXX	
67	G1/8" hose	14C531A097	
69	24 V 50 Hz NC stainless steel solenoid valve	1312079AXX	
70	24 V 50 Hz NO stainless steel solenoid valve	1312115AXX	
72	kit of 15 M3 screws for adjusting manifold angle	UAKVITIM30	
73	M G1/8" plug	1309633AXX	
74	atomising nozzle MTP1 2.8 kg/h marked "1"	UAKMTP1000	
75	atomising nozzle MTP2 4.0 kg/h marked "2"	UAKMTP2000	
76	kit of 8 brackets	UAKS000000	
77	kit for vertical manifold assembly with screws and washers	UAKMOR0000	
78	M 1/8" NPT plug	1309639AXX	
79	atomising nozzle MTP1 1.5 kg/h	UAKMTP0000	
	kit of washers and M6 bolts for complete rack assembly	UAKVITIM60	

Tab. 5.a

6. REPLACING AND CLEANING THE RACK COMPONENTS

Important:
- use liquid Teflon guaranteed for water pressures up to 100 bars to seal the water connections;
- wait 3 hours for the Teflon to set.

6.1 Water leaks

- repair by using liquid Teflon on all the water connections without O-rings or rubber gaskets;
- if necessary, replace the components as described in the following paragraph.

Remove the components to be cleaned

1. remove any components not made from stainless steel (for example nozzle o-rings);
2. soak the stainless steel parts in a solution of water and vinegar for 12 hours (use 4/5 water and 1/5 vinegar);
3. rinse with water;
4. for particularly resistant scale use pure vinegar for 12 hours;
5. reassemble all the components in the reverse order.

6.3 Replacement

1. switch off humiFog;
2. close the external water supply tap;
3. remove the connectors from the solenoid valves.

Nozzles and plugs

Important: remember the positions of the nozzles/plugs

4. Replace with extreme care.

Vertical manifolds

Important:
- remember the angle of each manifold;
- make sure the NO valve and direct connection remain intact;

5. remove the hose;
6. remove the coil from the NO solenoid valve;
7. remove the screw "PH0";
8. remove the bolts "D";
9. remove the adapter "E" for connecting the hose;
10. unscrew the NO solenoid valve.

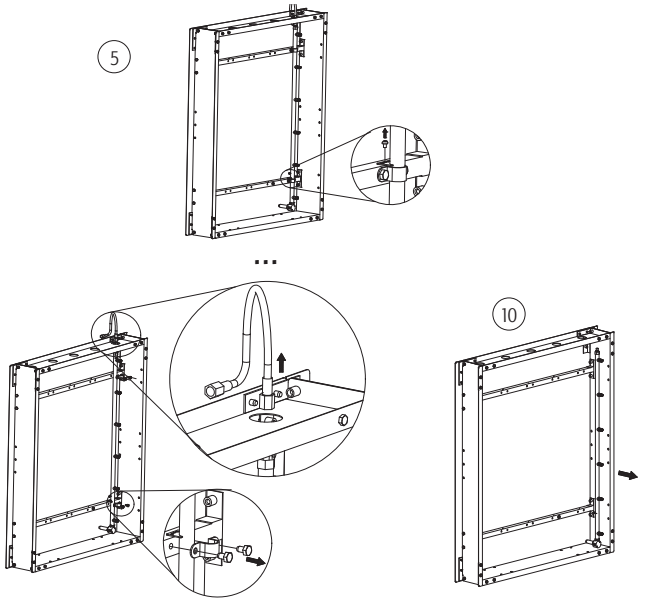


Fig. 6.a

NC valves and direct connections

11. solenoid valves: remove the coil;
12. unscrew part "H";
13. unscrew the NC solenoid valve/direct connectors with the G18" nipple;
14. unscrew the G1/8" nipple from the valve body/direct connector;
15. unscrew the adapter for the hose "E".

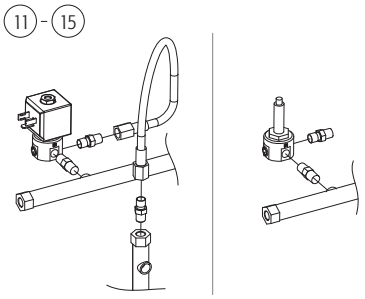


Fig. 6.b

Horizontal manifold

16. solenoid valves: remove the coil;
17. unscrew all the parts marked "H"
18. remove the bolts "D";
19. unscrew the NC solenoid valve/direct connectors, with the G18" nipple;
20. remove the elbow connector for draining the NO solenoid valve;
21. unscrew the M/F G1/4" elbow.

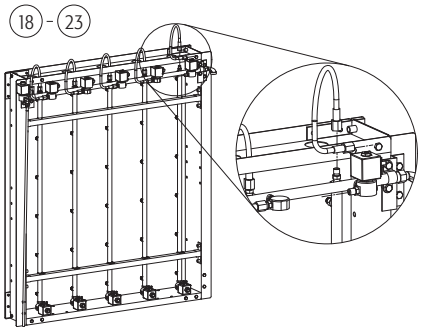


Fig. 6.c

7. ROOM DISTRIBUTION SYSTEM SPARE PARTS

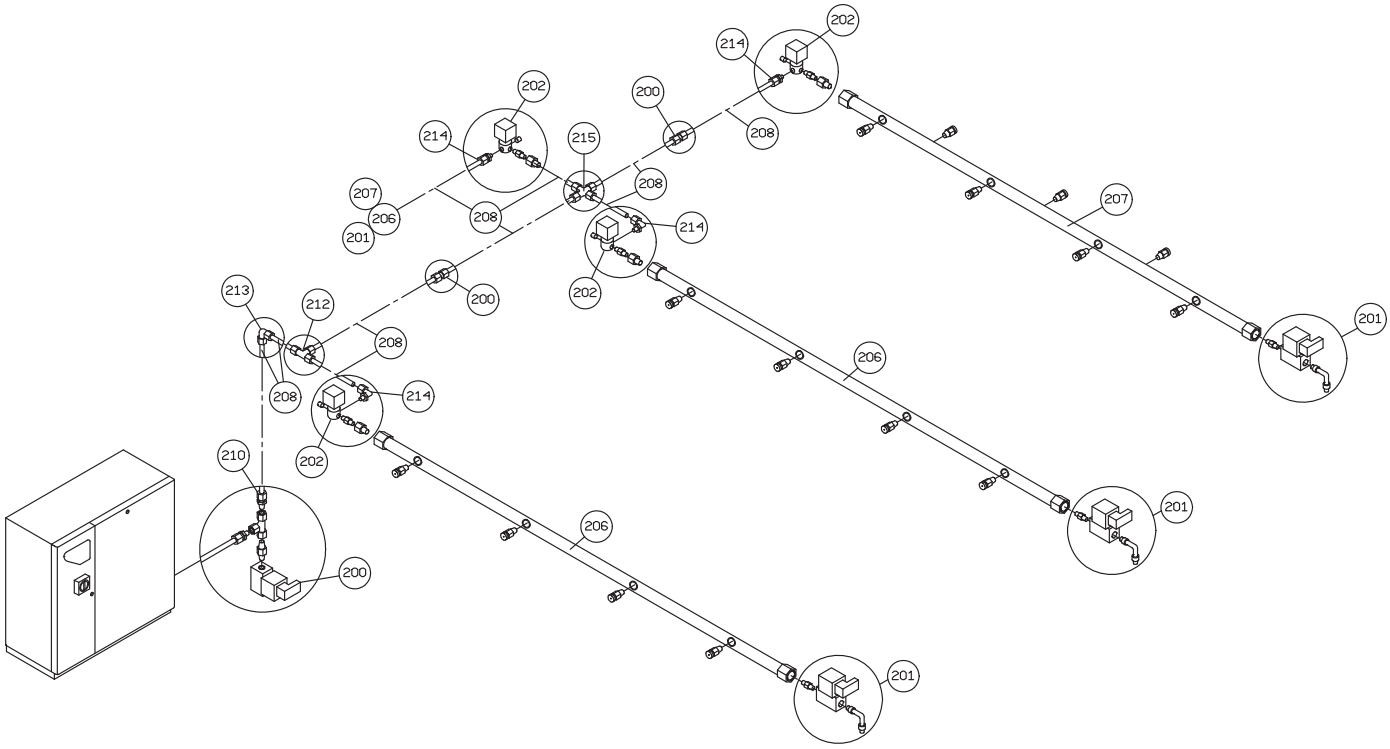


Fig. 7.a

7.1 List of room distribution system spare parts

ref.	description	code	notes
73	M G1/8" plug	1309633AXX	Ref. Fig. 5.b
74	Atomising nozzle MTP1 2.7 l/h	UAKMTP1000	
78	M 1/8" NPT plug	1309639AXX	
79	Atomising nozzle MTP0 1.45 l/h	UAKMTP0000	
200	Central drain solenoid valve kit	UAKCD0000*	
201	Drain solenoid valve kit for manifold	UAKVAL000*	
202	Capacity-control solenoid valve kit	UAKVALNC00	
206	Manifold with 4 holes for nozzles, step 600	UAKC4FP600	4 holes on 1 side
207	Manifold with 7 holes for nozzles, step 300	UAKC7FP300	4+3 holes on 2 sides
208	Extension kit d.10 L= 3 m; one stainless steel pipe	UAKT030000	ref fig 7a
	Extension kit d.10 L= 6 m; two stainless steel pipes	UAKT060000	
	extension pipe d. 10 L= 12 m (four stainless steel pipes)	UAKT012000	
	extension pipe d.10 L= 18 m; six stainless steel pipes	UAKT018000	
209	straight terminal for d.10 pipe	UAKTD00000	
210	straight G1/4"M terminal for d.10 pipe	UAKTD14000	
211	straight G1/8"M terminal for d.10 pipe	UAKTD18000	
212	female "T" for d.10 pipe	UAKTT00000	
213	female elbow for d.10 pipe	UAKTG00000	
214	female elbow for d.10 x1/8" pipe	UAKTG18000	
215	female "X" for d.10 pipe	UAKTX00000	

Tab. 7.a

*: 0= non-aggressive water; 1= aggressive water.

8. REPLACING AND CLEANING THE DISTRIBUTION SYSTEM COMPONENTS

switched off and the water supply tap is closed. Water may leak out when disconnecting the various water circuit components.

8.1 Water leaks

A. repair by using liquid Teflon on all the water connections without O-rings or rubber gaskets;
B. if necessary, replace the components as described in paragraph 5. 4.2

8.2 Cleaning

1. remove the components to be cleaned;
2. remove any components not made from stainless steel (for example nozzle o-rings);
3. soak the stainless steel parts in a solution of water and vinegar for 12 hours (use 4/5 water and 1/5 vinegar);
4. rinse with water;
5. for particularly resistant scale use pure vinegar for 12 hours;
6. reassemble all the components in the reverse order.

8.3 Replacement

1. switch off humiFog;
2. close the external water supply tap.

Replacing nozzles and plugs

Important: remember the positions of the nozzles (A) and plugs (B). Replace with extreme care.

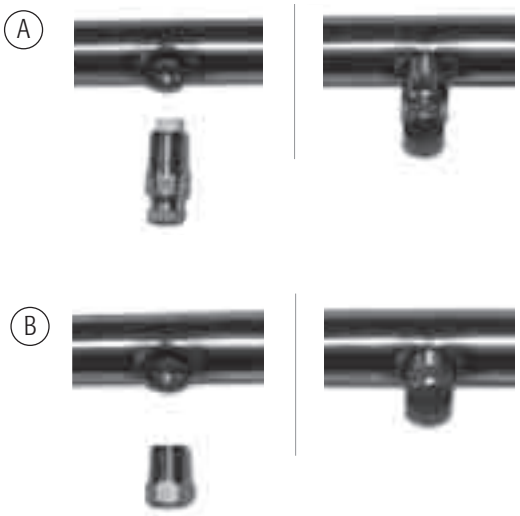


Fig. 8.a

Replacing the NC on-off valves

Important: the on-off valves are "normally closed" solenoid valves; the valve body has three F G1/8" connections (see the figure on the side).

Remember that the water inlet is the hole in the centre, while the two side holes are the two outlets available:
- individually, closing the outlet that is not used with a M G1/8" plug;
- together if this simplifies the water connections.

3. remove the electrical connector;
4. disconnect the pressurised water supply pipe;
5. unscrew the valve from the fittings;
6. unscrew the valve inlet connection;
7. unscrew the plug from the valve water outlet that is not used.

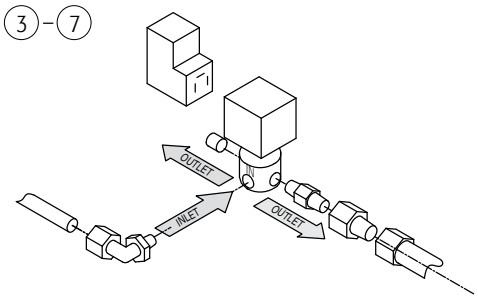


Fig. 8.b

Replacing the NO drain valves at the end of the line

8. remove the electrical connector;
9. disconnect the water drain hose;
10. unscrew the drain pipe fitting from the valve;
11. unscrew the valve and the nipple from the distribution manifold.

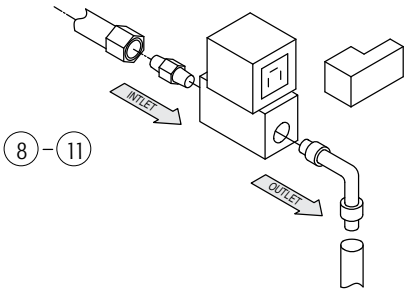


Fig. 8.c

Replacing the NO drain valves between the pump and the distribution system

12. remove the electrical connector;
13. disconnect the water drain hose;
14. unscrew the drain pipe fitting from the valve;
15. unscrew the valve and the nipple from the "T".

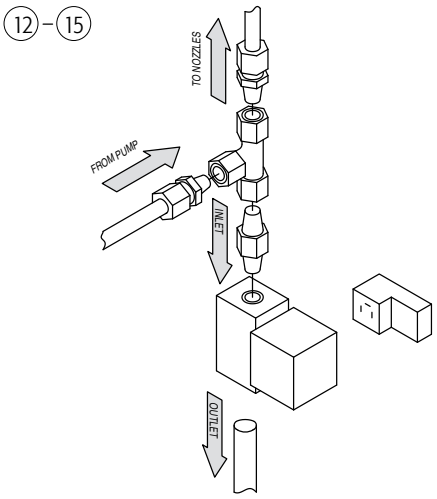


Fig. 8.d

9. SPARE PARTS FOR CONNECTION BETWEEN HUMIFOG AND THE DISTRIBUTION SYSTEM

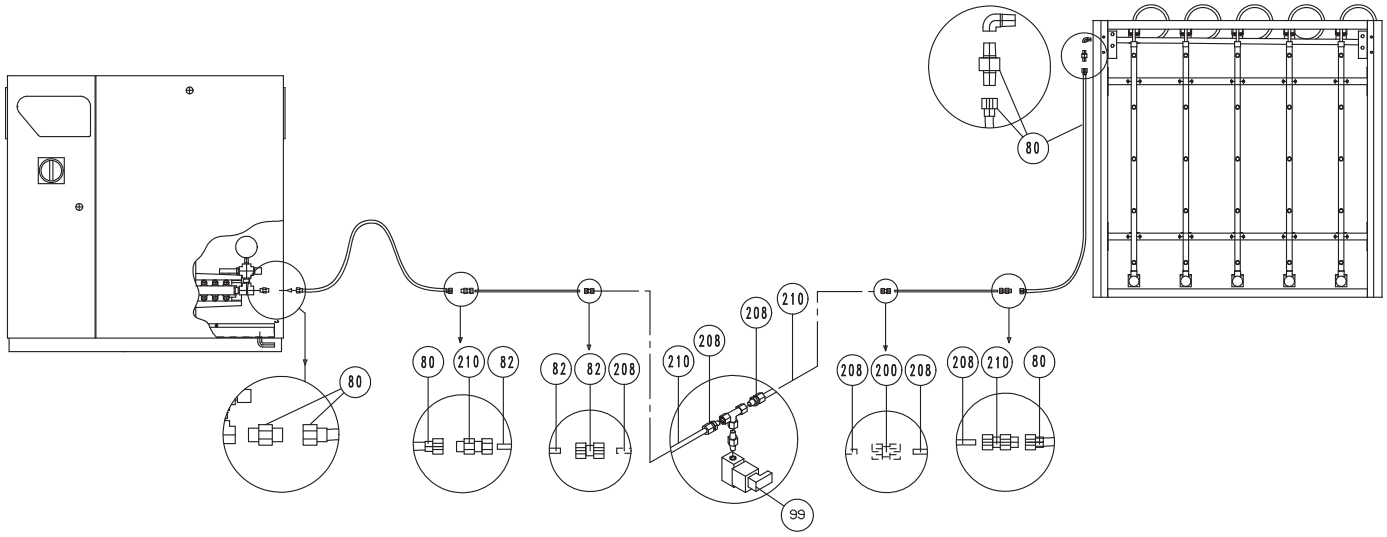


Fig. 9.a

Short hose kit (L= 2 m)

Fig. 9.b

Kit of 2 short hoses (L= 2 m) + Extension pipe kit (L= 1.5 m)

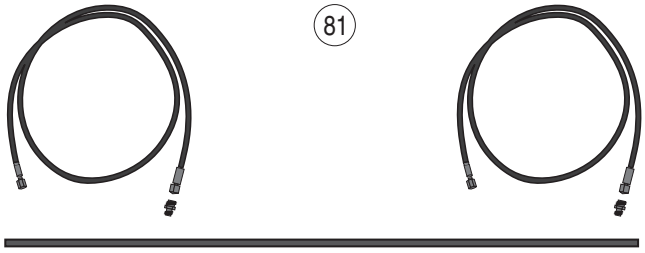


Fig. 9.c

Extension hose kit (L= see Tab. 9.a)

Fig. 9.d

Extension pipe kit (L= 1.5 m)

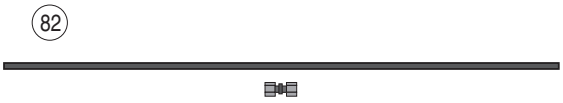


Fig. 9.e

Ref.	Description	Code	Notes
80	Short connection kit L= 2 m Hose and adapter	UAKT100000	
81	Long connection kit L= 5.5 m. Two hoses, one steel pipe and adapters	UAKT200000	
82	Extension pipe kit L= 1.5 m. One stainless steel pipe and adapter	UAKT300000	
83	Extension hose kit L= 2 m	UAKT400000	
	Extension kit L= 0.5 m	UAKT500000	
	Extension kit L= 1 m	UAKT600000	
	Extension kit L= 5 m	UAKT700000	
	Extension kit L= 10 m	UAKT800000	
	Extension kit L= 20 m	UAKT900000	
99	Brass line drain valve	UAKCD00000	
	Stainless steel line drain valve	UAKCD00001	
208	Extension pipe kit dia. 10 L= 3 m; One stainless steel pipe	UAKT030000	
208	Extension pipe kit dia. 10 L= 6 m; two stainless steel pipes	UAKT060000	
208	Extension pipe kit dia. 10 L= 12 m; Four stainless steel pipes	UAKT012000	
208	Extension pipe kit dia. 10 L= 18 m; Six stainless steel pipes	UAKT018000	
209	Straight terminal for dia. 10 pipe	UAKTD00000	
210	Straight M G1/4" terminal for dia. 10 pipe	UAKTD14000	
211	Straight M G1/8" terminal for dia. 10 pipe	UAKTD18000	
212	Female "T" for dia. 10 pipe	UAKTT00000	
213	Female elbow for dia. 10 pipe	UAKTG00000	
214	Female 1/8" elbow for dia. 10 pipe	UAKTG18000	
215	Female "X" for dia. 10 pipe	UAKTX00000	

Tab. 9.a

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+030222100 - rel. 1.0 - 12.05.2009